What is claimed is:

1 An apparatus for irradiating fluids with UV comprising:

a reactor vessel having a fluid inlet, a fluid outlet and a reaction chamber;

a plurality of UV lamps extending across the reaction chamber and substantially perpendicularly to an axis extending between the fluid inlet and the fluid outlet;

an upper fluid diverter and a lower fluid diverter extending across the reaction chamber substantially parallel to said lamps and positioned downstream of at least one upstream UV lamp, wherein the upper and lower fluid diverters are positioned to direct fluids toward at least one UV lamp downstream of the upstream UV lamp.

2. The apparatus according to Claim 1, wherein the upper and lower fluid diverters are positioned at an angle of about 45° from horizontal.

3. The apparatus according to Claim 1, wherein the lower fluid diverter is positioned substantially vertically below the upper fluid diverter.

4. The apparatus according to Claim 1, further comprising an L-shaped center fluid diverter positioned substantially halfway between the upper and lower fluid diverters.

5. The apparatus according to Claim 4, wherein the center fluid diverter has a pair of legs and is positioned such that the legs are at an angle of about 45° from horizontal.

6. The apparatus according to Claim 1, wherein the reaction chamber contains four UV lamps.

7. The apparatus according to Claim 1, further comprising a UV sensor extending into the reaction chamber for each UV lamp.

8. The apparatus according to Claim 1, wherein the reaction chamber contains six UV lamps.

9. The apparatus according to Claim 8, wherein the upper fluid diverter diverts fluids toward an uppermost UV lamp and the low fluid diverter diverts fluids toward a lowermost UV lamp.

10. The apparatus according to Claim 1, wherein the upper and lower fluid diverters are positioned at an angle less than 90° from horizontal.

11. An apparatus for irradiating fluids with UV comprising:

a closed, substantially circularly-shaped reactor vessel having a fluid inlet, a fluid outlet and a reaction chamber;

a plurality of UV lamps extending substantially horizontally across the reaction chamber and substantially perpendicularly to an axis extending between the fluid inlet and the fluid outlet;

an upper fluid diverter and a lower fluid diverter extending substantially horizontally across the reaction chamber substantially parallel to said lamps and positioned downstream of at least one upstream UV lamp, wherein the upper and lower fluid diverters are positioned to direct fluids toward at least one UV lamp downstream of the upstream UV lamp.